JAMES E. STEVENS -- PRINCIPAL PROJECT ENGINEER

Dr. Stevens has over 50 years professional experience for both owners and contractors for major chemical and hazardous waste processing facilities. Over his career he has been responsible for the process design, research and development and management of technology programs and projects, and the management of departmental operations with staff of up to 90 personnel. He has extensive experience in developing, building and starting up chemical processes worldwide. He has also worked with insurance companies on determining the cause of failures that resulted in significant damage to facilities.

Dr. Stevens had responsibility for managing the integration and completion of the design portion of a project. He ensures the objectives of the project are fully completed on time and within budget. He establishes communication links and designates responsibilities and directed project activities. For over 40 years he has held technically responsible positions. He has extensive experience in developing, building and starting-up processes for inorganic chemical, fine chemicals, polymers and environmental remediation projects.

He was responsible for design and start-up of multimillion dollar processing plants worldwide (including China and Japan). He has supervised engineers in starting up facilities, designing plants, operating plants and in technical information generation. He has developed a wide range of processes for new products and cost reductions. He designed several multi-step plants for fine chemicals, polymer additives, and specialty monomers.

He acted as start-up coordinator on numerous new technology plants gaining first hand operating knowledge so that his approach is geared to achieving sound operating processes. Processes designed have spanned a wide variety of reactor types and product isolation techniques. The products have varied from fine chemicals, and specialty additives to heavy chemicals and commodity polymers. Areas of special expertise include: multi-phase reactions; reactant recovery and recycling processes; and compliance with environmental regulations.

EXPERIENCE:

Principal Project Engineer **Washington Group Int.** *E.I. DU PONT DE NEMOURS* *Various site locations*	Responsible for managing the integration and completion of the design portion of a project; ensuring objectives met, maintaining schedules, and controlling costs; and providing the communications link between design, construction, and the plant.

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- Designed specialty fluorinated intermediate facility for DuPont's Washington Works that was constructed and operational 13 months after project approval.
- Designed and estimated a specialty organic intermediate's process for DuPont's Chambers Works Facility. (1990 - Present)

Principal Project Engineer
ARISTECH CHEMICAL
Phenol Expansion, OH

Responsible for managing the design aspects of a project to upgrade and expand Aristech's two existing phenol production facilities at Haverhill, OH by 10%. The major portion of the modifications were successfully accomplished during a scheduled 10-day shut-down period and the plant was back on stream and meeting design capacity ahead of schedule.

Principal Project Engineer
AKZO SALT, INC.
Evaporative Salt Plant, OH

Developed design package with AKZO team for major new multi-effort evaporated systems for proposed AKZO salt plant. (1990)

General Manager
BDT, INC.

Responsible for directing the profitable and safe operation of a $4MM hazardous waste treatment business and ensuring compliance with all Government Regulations. Direct reports included marketing, operations, technology, finance and customer services. (1987 - 1989)

- Doubled the operating rate of the plant, within the permit constraints to achieve $4MM/year revenue while keeping GPM at greater than 40%. Increased net profit from $40K to $600K.
- Completed application and received NYDEC approval. Developed strong relationships with town officials and area interest groups gaining acceptance of proposed facility expansion.
- Reduced old inventory from two years to three months maximum time to process by resolving technical and safety issues.

Director, Commercial Development & Technology Licensing
OCCIDENTAL CHEMICAL CORPORATION

Responsible for $200MM Chemicals Division's worldwide Processing Technology and Engineering Services sales as well as new product development, acquisition studies and market analysis. Direct accountability for Technology Licensing business profitability. Headed a forty man engineering and licensing department as well as a 15 man new product marketing group. (1981 - 1987)

- Turned around $10MM Technology Licensing business from a consistent loser to a consistent profit generator ($2MM in 1985 and 1986) primarily by establishing realistic technical and business objectives and sound project teams.

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- Resolved performance shortcomings of licensed technology in three $20MM worldwide plants averting multimillion-dollar product liability.
- Personally completed sale of $7 million technology package for chlorine dioxide generation through developing prospectus, contacting potential buyers and negotiating price and terms.
- Established markets, developed synthesis technology, and manufactured pre-commercial quantities of new organic fine chemical intermediates with $20 million sales potential. (Established contacts with specialty polymer producers and pesticide manufacturers to provide their additive and intermediate needs.)
- Established program of pesticide manufacturer contacts and identified products with sales potential of $70 million per year.

Director, Specialty Chemicals R&D
HOOKER CHEMICAL AND PLASTICS CORPORATION

Responsible for all technical programs worldwide for the Specialty Chemicals Division. Managed $6MM budget and 92 man R&D effort. (1977 - 1981)

- A key member of management team for division that achieved $25MM record profits.
- Developed technology that resulted in $12MM per year reduction in raw material costs of an organic fine chemical (PCBTF).
- Developed, piloted and produced unique intermediate for high priority new synthetic pyrethroid - 1985 sales of $4MM.
- Developed and produced commercial quantities of new organic intermediate for specialty polymers, polymer additives and new pesticides.

Manager, Research and Development

Planned, budgeted, and managed development of new products and processes from inception to commercial operation. (Inorganic chemicals, plastics additives, pesticides and organic intermediates). (1975 - 1977)

Supervisor, Process Design, Corporate Engineering

Responsible for design of multimillion dollar chemical process plants. Supervised engineers in designing three plants (ammonia synthesis $14MM, thionyl chloride $5MM, hydrogen recovery $3MM) that were constructed and successfully started up. (1973 - 1975)

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Engineer, Research & Development, Process Design	Developed a wide range of processes for new products and cost reductions. Designed several multi-step process plants for organic and inorganic chemicals and polymers that have proven cost effective even after 30 years. Personally directed successful start-up of several newly constructed plants. (1960 - 1973)

EDUCATION:

Executive Training, Harvard Business School Seminars, 1977/78
MBA, General Management, SUNY of Buffalo, 1976
PhD, Chemical Engineering, SUNY of Buffalo, 1966
MS, Chemistry, Niagara University, 1962
BS, Chemical Engineering, University of Michigan, 1960

AWARDS AND PUBLICATIONS:

Professional Achievement Award; Western New York Section, AIChE, 1981

Article: "Chlorinated Derivatives of Cyclopentadiene" in 3rd Edition Kirk-Othmer Encyclopedia of Technology, 1978

Paper: "Controlled Cycle Operation of a Centrifugal Extractor" presented at AIChE National Meeting